



**International Charter
Space and Major Disasters**

History and Operations

Charter Executive Secretariat



Purpose

- An International agreement among Space Agencies to support with space-based data and information relief efforts in the event of emergencies caused by major disasters.
 - ◎ **Disaster response**
 - **Multi-satellite data acquisition planning**
 - Fast data turn-around - priority acquisition
 - ◎ **Archive retrievals and spacecraft tasking**
 - **Data processing at pre-determined level**
 - **Space Agency contribution in image/data**
 - **Space Agency initiative for value-added-data fusion**

Charter Member Agencies



CSA 
Canada

NOAA 
USGS 
USA

CONAE 
Argentina

CNES 
France

ESA 
DMC 
Europe

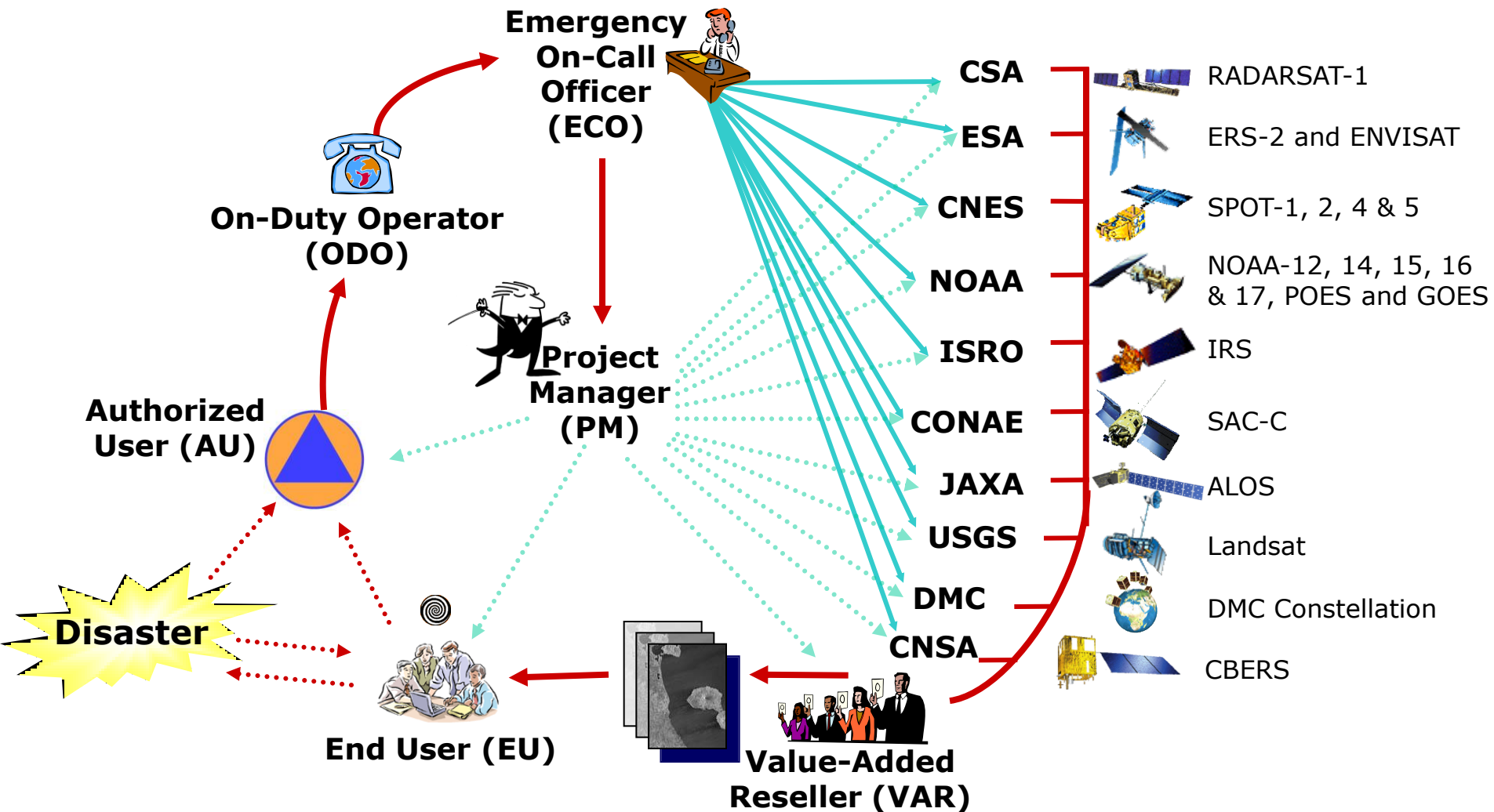
CNSA 
China JAXA 
Japan

ISRO 
India

Charter Functional Units

- **Authorized Users (AUs)**
- **On-Duty Operator (ODO)**
- **Emergency on-Call Officer (ECO)**
- **Project Manager (PM)**
- **Data processing and distribution facilities**





Authorized User (AU) Interfaces

- **AU – On-Duty Operator (ODO)**



- AU calls the ODO and submits the User Request Form (URF)
- ODO checks the identity of the calling AU
- ODO confirms the reception of the URF and its completeness

Authorized User (AU) Interfaces



- **AU – Emergency on-Call Officer (ECO)**

- ECO calls the AU for information on the Disaster
- Only the ECO initiates the call and obtains the AU input
 - Geographical location of the affected area
 - Type of disaster
 - Extent of disaster
 - Type of data processing/product (if applicable)
 - Target delivery time
 - Delivery medium and address
 - Any additional information



Authorized User (AU) Interfaces



- **AU – Project Manager (PM)**

- PM contacts directly the ECO if required
- PM obtains further information on the requirement
- PM apprises the AU with regard to the data acquisition planning
- PM solicits AU's appraisal of the Charter activation



Charter Activation Cases (disaster types)

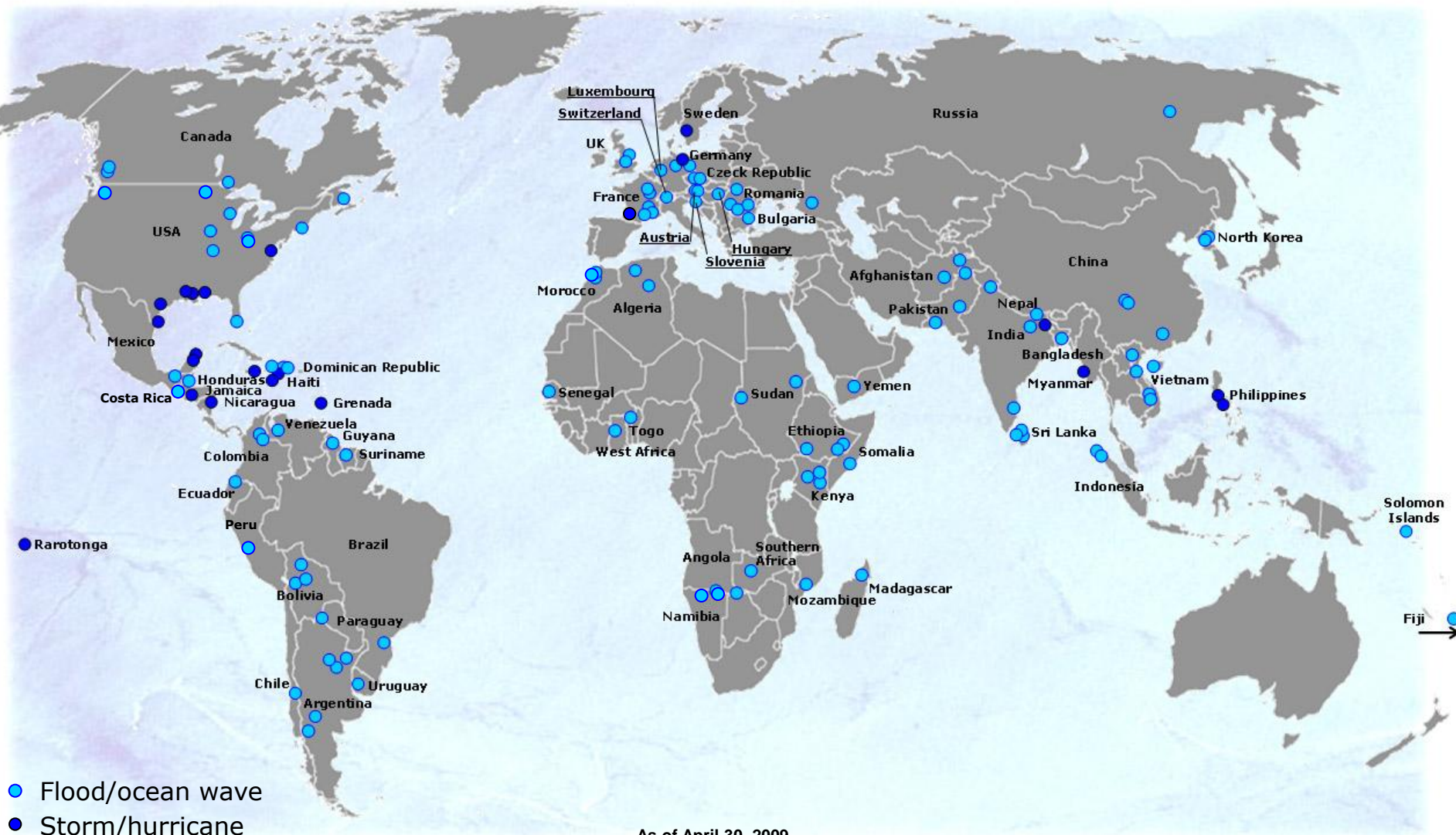


		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Sub-totals		Total
Solid Earth	Earthquake	1	3	1	3	5	3	2	5	4		26	50	214
	Landslide		1	2	2		1			2	9			
	Volcano		1	1	2	2	1	1	2	3	2	15		
Weather / Atmospheric	Storm/hurricane**			1	2	3	6	1	8	8	1	30	151	
	Ice/snow hazard								1			1		
	Flood/ocean wave*		3	8	4	9	13	16	22	23	7	105		
	Fire			5	1	2		4	2	1	15			
Technological	Oil spill		3	2				4	3			12	13	
	Others					1						1		
	Total / year	1	11	15	18	21	25	25	45	40	13			

*includes solid earth related phenomenon of a tsunami

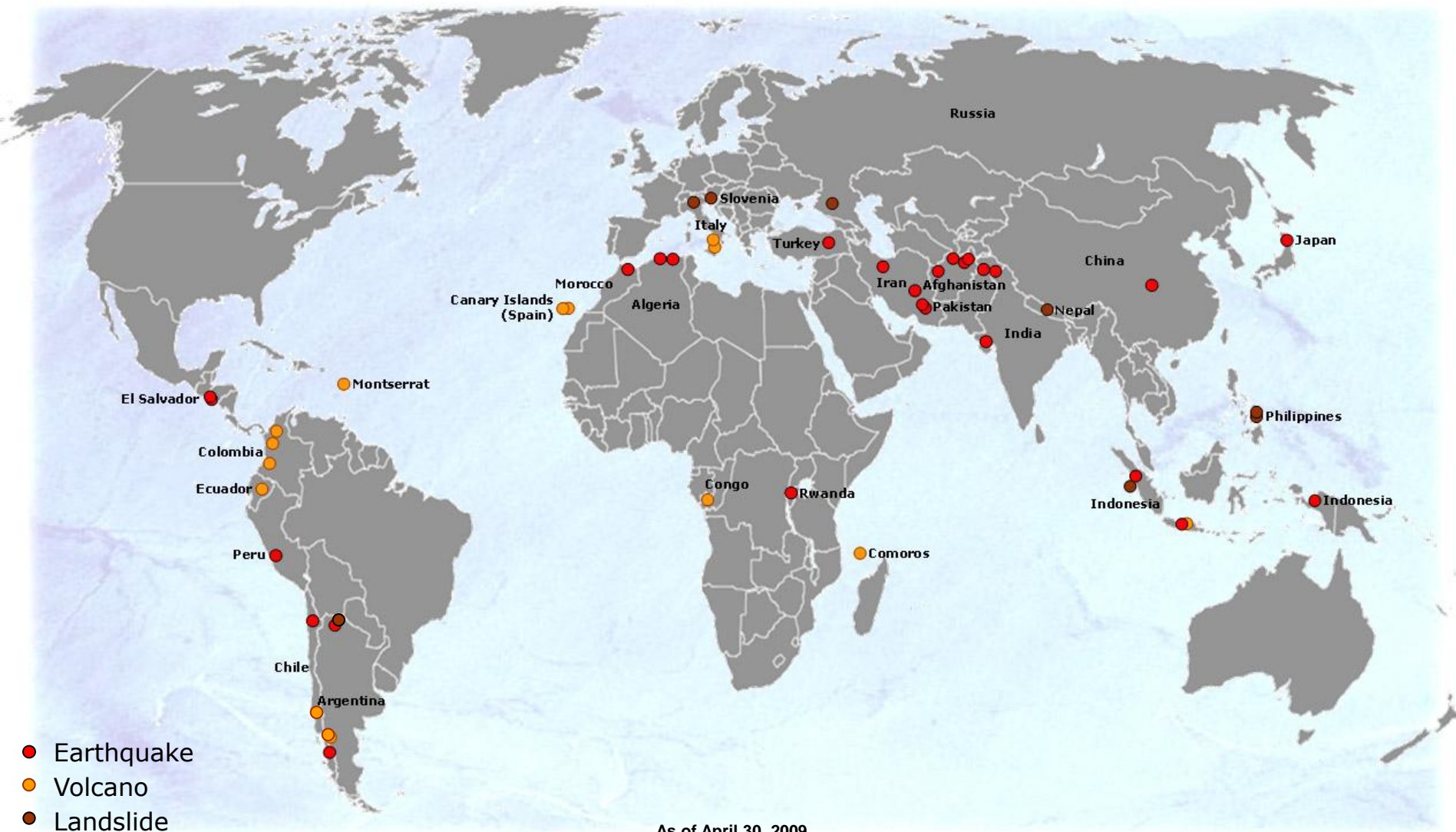
**includes all wind type storms (hurricane, cyclone, typhoon and tornado)

Activation Distribution Floods and storms



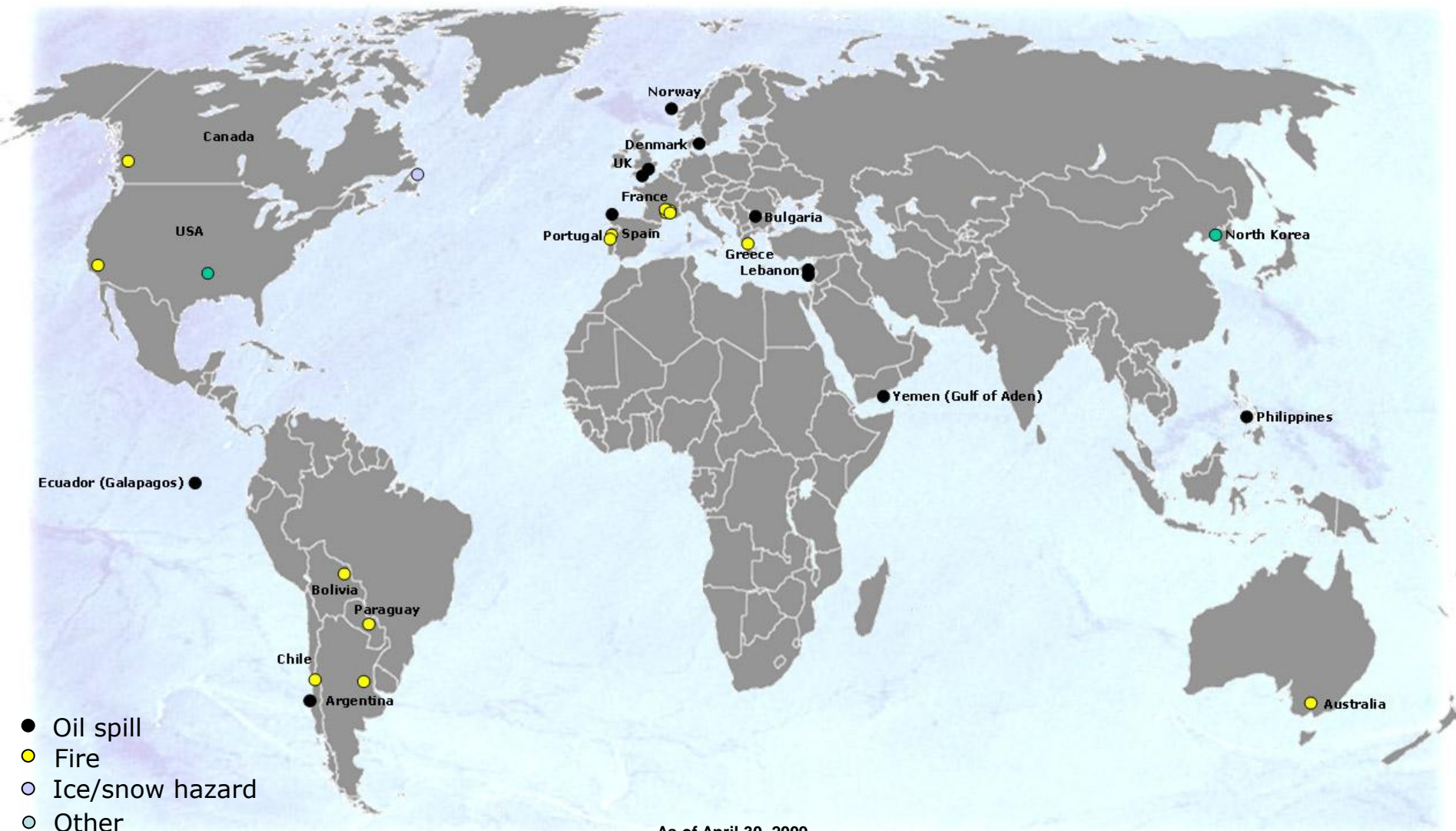
Activation Distribution

Earthquakes, volcanic eruptions and landslides

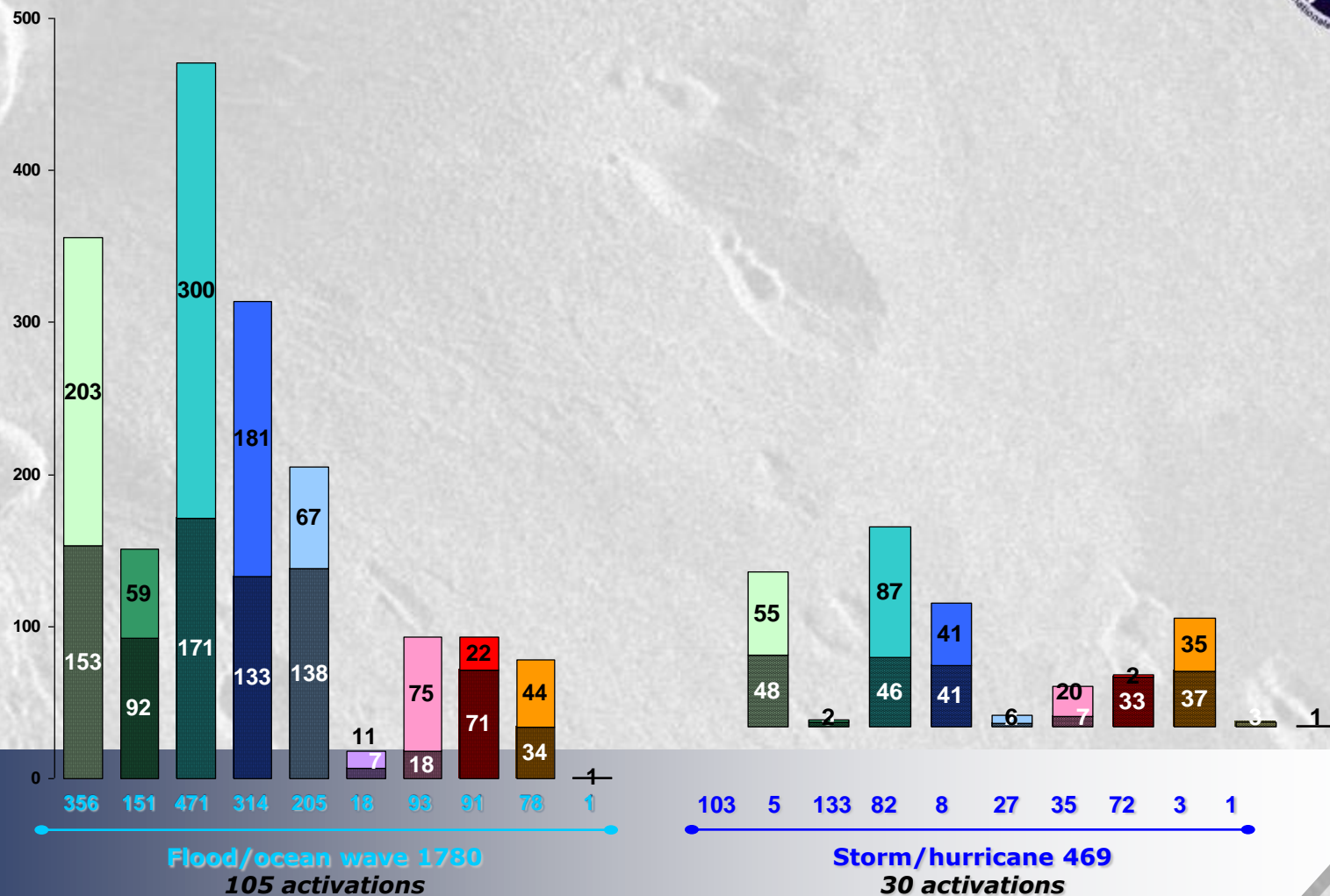


Activation Distribution

Oil spills, forest fires and other hazards

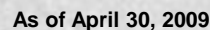


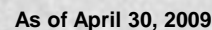
Data Units Used for Various Disasters



As of April 30, 2009

[illegible]

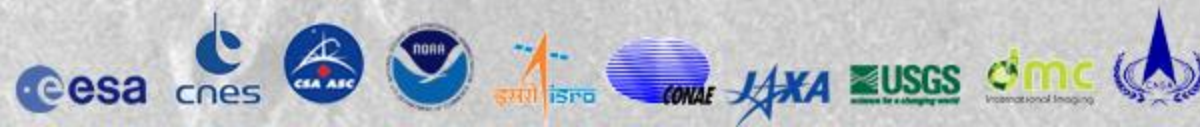
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[illegible]



The International Charter 'Space and Major Disasters' website:

www.disasterscharter.org





Georgia Flooding 2009

- The Sept. 2009 Flooding in Georgia was the first time USDA requested support under the International Charter.
- Data provided under the Charter is for “Disaster Response”.
- If your agency is not listed, you will not have access to this data.
- By activating for USDA, all Agencies were included.



Why Activate?

- Allows for access to multiple sources of FREE imagery.
- May provide imagery to support your mission.

Problems?

- Imagery may not be a source that you have used in the past.
 - Many times the vendor provides before and after imagery to mitigate this problem.
- Can not rely on having requirements met by the source that you prefer.
 - Must manage your expectations!
- Data management:
 - Still a lot of FTP downloads
 - SAR? Who can process?
 - Ortho rectified?

What I need?

- Ideally an agency needs to request early in the process.
 - Example:
 - \FSA request imagery support to assess / delineate crop damage in these counties...
 - Good enough!



Q&A Brenda Jones

Q: When a US disaster happens, how do you find someone to make the value added products?

A: I appoint a project manager, and it is really their responsibility to make the products happen. They can either do it themselves, or they can work with other groups to coordinate the production.

Q: How are different US universities tasked?

A: Right now the universities are working with their state counterparts to assist in production. AmericaView is looking at providing support, but have not come forward with an actual plan yet. We are also working with GISCORPS to get them to have some volunteers ready to provide production support.

Q: Do you have a call down list for volunteers?

A: I don't have an official call down list, but I do have a mental one that I use when a project manager asks for help with products. It would probably be a good idea to put it on paper and route it around.

Q: Is this something USDA could help with?

A: Absolutely - just as a reminder though, it is all volunteer- USGS does not have funds to reimburse anyone for their assistance/participation in Charter activations.



- Brenda K. Jones
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FOR EMERGENCIES
CELL: 605-321-3995

If you use the imagery

- Reference International Charter and vendor on graphics.
- If you can, provide me with sample products. Post on Charter Site.
- Feedback on how usefulness of the imagery.

TSUNAMI DAMAGES IN SE'ETAGA VILLAGE, LEALATAUA, TUTUILA ISLAND, AMERICAN SAMOA

Damage Analysis
with Formosat-2
Data Acquired on
2-3 October 2009

This map illustrates satellite-detected areas of likely building and vegetation damages caused by the magnitude 8.8 earthquake and resulting tsunami on 29 September 2009. A total of 8 damage sites were identified based on post-disaster satellite imagery collected on 2-3 October 2009. Each site has a corresponding high resolution focus map within the PDF document. Damage identification was significantly restricted by heavy cloud and cloud coverage, as well as by spatial resolution of the imagery. It is probable therefore that damages have been underestimated. This assessment is a preliminary analysis and has not yet been validated in the field. Please send ground feedback to UNITAR / UNOSAT.

Disaster coverage by the
International Charter 'Space and
Major Disasters'. For more
information on the Charter, which
is about assisting the disaster
relief organizations with multi-
satellite data and information, visit
www.disasterscharter.org



20 October 2009

Version 1.0

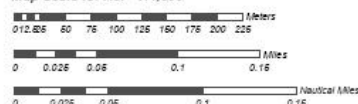
Glide No:
TS-2009-000209-ASM



Legend

- Main Building Damage Zone
- Satellite-identified Tsunami Damage Site

Map Scale for A3: 1:4,500



Satellite Data (1)..... Formosat-2
Imagery Dates..... 2-3 October 2009
Resolution..... 2 meters (pan-sharpened)
Copyright..... NSPO-2009
Elevation Data..... USGS / GDEM
Resolution..... 8m / 27m
Source..... USGS, METI & NASA 2009
Vector Data..... Google Map Maker
Bathymetry Data..... NOAA & FBIMS
Building Data..... FBIMS / USGS

Other Data..... USGS, NSA, WOPR
Charter PIM..... USAID/OFDA
Analysis..... UNITAR / UNOSAT
Map Production..... UNITAR / UNOSAT
Projection..... UTM Zone 2 South
Datum..... WGS-84 (EGM96)

Map Data © 2009 Google -
Improve with Google Map Maker

The depiction and use of boundaries, geographic names and related data shown here are not warranted to be error-free nor do they imply official endorsement or acceptance by the United Nations. UNOSAT is a program of the United Nations Institute for Training and Research (UNITAR), providing satellite imagery and related geographic information, research and analysis to UN humanitarian and development agencies & their implementing partners.

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Imagen **ALOS** del día **1SEP09** en la que se observan en una tonalidad gris oscuro, las áreas afectadas en la Sierra.

